

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

*Siba* 1. An acetabular cup assembly for receiving a proximal end of a femoral component of a prosthetic hip implant, the femoral component including a head member and a neck member depending from the head member, the acetabular cup assembly having an external shell member with an internal cavity, and an internal bearing member for securement within the cavity to receive the head member of the femoral component for rotational movement within the bearing member, the internal bearing member being selected from a plurality of bearing members having different characteristics such that the acetabular cup assembly selectively is provided with characteristics corresponding to the characteristics of the selected internal bearing member, the acetabular cup assembly comprising:

a metallic securing member for reception within the cavity of the acetabular shell, the securing member extending between an upper end and a lower end and including an external securing element and an internal receptor element;

an external receptor element on the bearing member, the external receptor element and the internal receptor element being compatible with particular characteristics of the bearing member [such that upon engagement of the external receptor element with the internal receptor element the internal bearing member is secured to the securing member with the lower end of the bearing member spaced

upwardly a prescribed distance from the lower end of the securing member; } and

an internal securing element within the cavity of the shell member, the internal securing element being essentially complementary to the external securing element of the securing member such that upon selective engagement of the external securing element with the internal securing element the securing member is secured selectively within the shell member;

the prescribed distance between the lower end of the bearing member and the lower end of the securing member being such that contact between the neck member of the femoral component and the lower end of the securing member precludes deleterious impingement of the femoral component upon the bearing member.

2. The invention of claim 1 wherein the internal securing element of the shell member and the external securing element of the securing member include complementary tapered securing surfaces for interlocking in response to seating engagement of the complementary securing surfaces.

3. The invention of claim 2 wherein the internal receptor element of the securing member and the external receptor element of the bearing member include complementary securing surfaces for interlocking upon seating engagement of the complementary securing surfaces.

4. The invention of claim 3 wherein the complementary securing surfaces of the external receptor element include complementary tapered surfaces for interlocking in response to seating engagement of the complementary tapered surfaces.

5. The invention of claim 4 wherein the shell member includes a lower end and an upper end, the cavity extends from the lower end toward the upper end of the shell member, and the internal securing element is located adjacent the lower end of the shell member.

6. The invention of claim 5 wherein the external securing element is located adjacent the lower end of the metallic securing member.

7. The invention of claim 6 wherein the metallic securing member includes a ring portion adjacent the lower end and a domed portion extending between the ring portion and the upper end of the metallic securing member.

8. The invention of claim 7 wherein the shell member includes at least one depending finger extending downwardly from the lower end of the shell member, and the metallic securing member includes a flange extending laterally outwardly from the lower end of the securing member for engaging the depending finger to preclude the seating engagement of the complementary tapered

securing surfaces of the shell member and the securing member, and at least one notch in the flange, the notch being configured for accepting entrance of the finger into the notch upon alignment of the notch with the finger, such alignment of the notch with the finger being accomplished upon a desired orientation and alignment of the securing member, and the bearing member therein, relative to the shell member, for enabling seating engagement of the complementary tapered surfaces with the bearing member in the desired orientation and alignment.

9. The invention of claim 1 wherein the shell member includes a lower end and an upper end, the cavity extends from the lower end toward the upper end of the shell member, the internal receptor element includes a central axis extending longitudinally between the lower end and the upper end of the shell member, the external securing element includes a central axis extending longitudinally between the lower end and the upper end of the shell member, and the central axis of the internal receptor element is offset laterally from the central axis of the external securing element.

10. The invention of claim 9 wherein the internal securing element of the shell member and the external securing element of the securing member include complementary tapered securing surfaces for interlocking in response to seating engagement of the complementary securing surfaces.

11. The invention of claim 10 wherein the internal receptor element of the securing member and the external receptor element of the bearing member include complementary securing surfaces for interlocking upon seating engagement of the complementary securing surfaces.

12. The invention of claim 11 wherein the complementary securing surfaces of the external receptor element include complementary tapered surfaces for interlocking in response to seating engagement of the complementary tapered surfaces.

13. The invention of claim 12 wherein the shell member includes at least one depending finger extending downwardly from the lower end of the shell member, and the metallic securing member includes a flange extending laterally outwardly from the lower end of the securing member for engaging the depending finger to preclude the seating engagement of the complementary tapered securing surfaces of the shell member and the securing member, and at least one notch in the flange, the notch being configured for accepting entrance of the finger into the notch upon alignment of the notch with the finger, such alignment of the notch with the finger being accomplished upon a desired orientation and alignment of the securing member, and the bearing member therein, relative to the shell member, for enabling seating engagement of the complementary tapered surfaces with the bearing member in the desired orientation and alignment.

14. The invention of claim 1 wherein the shell member includes a lower end and an upper end, the cavity extends from the lower end toward the upper end of the shell member, the internal receptor element includes a central axis extending longitudinally between the lower end and the upper end of the shell member, the external securing element includes a central axis extending longitudinally between the lower end and the upper end of the shell member, and the central axis of the internal receptor element makes an acute angle with the central axis of the external securing element.

15. The invention of claim 14 wherein the internal securing element of the shell member and the external securing element of the securing member include complementary tapered securing surfaces for interlocking in response to seating engagement of the complementary securing surfaces.

16. The invention of claim 15 wherein the internal receptor element of the securing member and the external receptor element of the bearing member include complementary securing surfaces for interlocking upon seating engagement of the complementary securing surfaces.

17. The invention of claim 16 wherein the complementary securing surfaces of the external receptor element include

complementary tapered surfaces for interlocking in response to seating engagement of the complementary tapered surfaces.

18. The invention of claim 17 wherein the shell member includes at least one depending finger extending downwardly from the lower end of the shell member, and the metallic securing member includes a flange extending laterally outwardly from the lower end of the securing member for engaging the depending finger to preclude the seating engagement of the complementary tapered securing surfaces of the shell member and the securing member, and at least one notch in the flange, the notch being configured for accepting entrance of the finger into the notch upon alignment of the notch with the finger, such alignment of the notch with the finger being accomplished upon a desired orientation and alignment of the securing member, and the bearing member therein, relative to the shell member, for enabling seating engagement of the complementary tapered surfaces with the bearing member in the desired orientation and alignment.

19. The invention of claim 1 including a cushion at the lower end of the securing member for interposition between the securing member and the femoral component.

Sub 27 20. A shell member for use in an acetabular cup assembly having an internal bearing member for securement within the shell member, the internal bearing member being selected from a plurality

of bearing members having different characteristics such that the acetabular cup assembly selectively is provided with characteristics corresponding to the characteristics of the selected internal bearing member, the shell member comprising:

an internal cavity;

a first securing element within the cavity of the shell member, the first securing element being compatible with the securing characteristics of at least one of the plurality of internal bearing members; and

a second securing element within the cavity of the shell member, the second securing element being compatible with the securing characteristics of at least another of the plurality of internal bearing members;

the first and second securing elements being juxtaposed with one another and placed at relative locations such that the effectiveness of each of the first and second securing elements is maintained in the presence of the other of the first and second securing elements, whereby the one and the another of the internal bearing members each is selectable for effective securement within the shell member to complete the acetabular cup assembly.

21. The invention of claim 20 wherein the shell member includes a lower end and an upper end, the cavity extends from the lower end toward the upper end of the shell member, and the first and second securing elements are located adjacent the lower end of the shell member.



22. The invention of claim 21 wherein the bearing member includes a rib projecting from the bearing member, and the first securing element includes a recess in the shell member for receiving the rib of the bearing member.

23. The invention of claim 21 wherein the bearing member includes an external securing surface, and the second securing element includes an internal securing surface, the external securing surface and the internal securing surface having complementary tapered configurations for interlocking in response to seating engagement of the complementary tapered configurations.

24. The invention of claim 23 wherein the bearing member includes a rib projecting from the bearing member, and the first securing element includes a recess in the shell member for receiving the rib of the bearing member, the tapered configuration of the internal securing surface extends between an upper end and a lower end, and the recess is located intermediate the upper end and the lower end of the tapered configuration of the internal securing surface to establish an upper internal securing surface segment and a lower internal securing surface segment, with each of the upper and lower internal securing surface segments having a length between the upper and lower ends of the internal securing surface sufficient to maintain securing effectiveness throughout the internal securing surface.

25. The invention of claim 24 wherein the recess is located essentially midway between the upper and lower ends of the internal securing surface.

*Sub 3* 26. The invention of claim 25 wherein the bearing member includes an upper end and a lower end spaced in an axial direction from the upper end, and the rib includes a cross-sectional profile contour configuration having an upper section confronting the upper end of the bearing member, a lower section confronting the lower end of the bearing member, and an intermediate section between the upper and lower sections, the upper section making a first acute angle with the axial direction, the lower section making an obtuse angle with the axial direction, and the intermediate section making a second acute angle with the axial direction, the second acute angle being smaller than the first acute angle so as to establish tapered surfaces along the upper and intermediate sections for facilitating engagement of the rib within the recess, and a locking surface along the lower section for retaining the rib within the recess, while providing the rib with resistance to shearing from the bearing member.

27. A kit of component parts for assembling an acetabular cup assembly having an internal bearing member secured within a shell member, the kit comprising:

a plurality of bearing members having different characteristics such that the acetabular cup assembly selectively

is provided with characteristics corresponding to the characteristics of a selected one of the internal bearing members;

the shell member comprising:

an internal cavity;

a first securing element within the cavity of the shell member, the first securing element being compatible with the securing characteristics of at least one of the plurality of internal bearing members; and

a second securing element within the cavity of the shell member, the second securing element being compatible with the securing characteristics of at least another of the plurality of internal bearing members;

the first and second securing elements being juxtaposed with one another and placed at relative locations such that the effectiveness of each of the first and second securing elements is maintained in the presence of the other of the first and second securing elements, whereby the one and the another of the internal bearing members each is selectable for effective securement within the shell member as the selected one bearing member to complete the acetabular cup assembly.

28. The invention of claim 27 wherein the shell member includes a lower end and an upper end, the cavity extends from the lower end toward the upper end of the shell member, and the first and second securing elements are located adjacent the lower end of the shell member.

29. The invention of claim 28 wherein the bearing member includes a rib projecting from the bearing member, and the first securing element includes a recess in the shell member for receiving the rib of the bearing member.

30. The invention of claim 28 wherein the bearing member includes an external securing surface, and the second securing element includes an internal securing surface, the external securing surface and the internal securing surface having complementary tapered configurations for interlocking in response to seating engagement of the complementary tapered configurations.

31. The invention of claim 30 wherein the bearing member includes a rib projecting from the bearing member, and the first securing element includes a recess in the shell member for receiving the rib of the bearing member, the tapered configuration of the internal securing surface extends between an upper end and a lower end, and the recess is located intermediate the upper end and the lower end of the tapered configuration of the internal securing surface to establish an upper internal securing surface segment and a lower internal securing surface segment, with each of the upper and lower internal securing surface segments having a length between the upper and lower ends of the internal securing surface sufficient to maintain securing effectiveness throughout the internal securing surface.

32. The invention of claim 31 wherein the recess is located essentially midway between the upper and lower ends of the internal securing surface.

Sub 4709 33. An improvement in a method for implanting an acetabular cup assembly having an external shell member with an internal cavity, and an internal bearing member for securement within the cavity, the internal bearing member being selected from a plurality of bearing members having different characteristics such that the acetabular cup assembly selectively is provided with characteristics corresponding to the characteristics of the selected internal bearing member, the improvement comprising the steps of:

providing a first securing element within the cavity of the shell member, the first securing element being compatible with the securing characteristics of at least one of the plurality of internal bearing members;

providing a second securing element within the cavity of the shell member, the second securing element being compatible with the securing characteristics of at least another of the plurality of internal bearing members; and

selecting the one or the another of the internal bearing members and securing the selected internal bearing member within the shell member by engaging the selected internal bearing member with the corresponding first securing element or second securing element for completion of the acetabular cup assembly.

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